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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,269	02/13/2004	Eric Siu-Wai Kong	MR3377-2	5431
4586	7590	05/05/2005	[REDACTED]	[REDACTED]
ROSENBERG, KLEIN & LEE			LIN, TINA M	
3458 ELLICOTT CENTER DRIVE-SUITE 101			[REDACTED]	[REDACTED]
ELLICOTT CITY, MD 21043			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/777,269	KONG, ERIC SIU-WAI
	Examiner	Art Unit
	Tina M. Lin	2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is **FINAL**.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-56 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,2,4,6,17-20,22,34-38 and 51-56 is/are rejected.  
 7) Claim(s) 3,5,7-16,21,23-33 and 39-50 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 13 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/19/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 19 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent Application Publication 2003/0112576 to Brewer et al.

In regards to claim 1, Brewer et al discloses a method of fabricating an integral optical device comprising the steps of (a) forming a dielectric film layer on a substrate [0032], heating the dielectric layer [0032], pressing the dielectric film layer against a stamp having a pattern of at least one waveguide formed thereon ([0034], [0014]), compressing the stamp and the dielectric layer [0034], cooling the dielectric layer [0035] and removing the stamp from the dielectric layer [0035] and thereby producing at least one waveguide structure on the substrate.

In regards to claim 19, Brewer et al discloses a method of fabricating an integral optical device comprising the steps of (a) forming a dielectric film layer on a substrate [0032], heating the dielectric layer [0032], pressing the dielectric film layer against a stamp having a pattern of at least one resonator formed thereon ([0034], [0014]), compressing the stamp and the dielectric

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layer [0034], cooling the dielectric layer [0035] and removing the stamp from the dielectric layer [0035] and thereby producing at least one resonator structure on the substrate. (Figure 7)

In regards to claim 37, Brewer et al discloses an integrated optical device comprising a substrate layer (290) and a dielectric layer (210) formed on the substrate layer and at least one waveguide structure being formed in the dielectric layer. (Figures 2A-2M)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 6, 17, 18, 20, 22, 34-36, 38 and 51-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0112576 to Brewer et al.

In regards to claims 2 and 20, Brewer et al fails to disclose the dielectric film layer to be formed from an electro-optic polymer. However, Brewer et al discloses many different structures may be formed on the dielectric film layer, both electrical and optical components. Therefore, for versatility, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have a dielectric film layer formed from an electro-optic polymer.

In regards to claims 4 and 22, Brewer et al further discloses the step of removing excess dielectric material surrounding the waveguide or resonator following the step of removing the stamp. [0036]

In regards to claims 6 and 38, Brewer et al discloses at least one waveguide structure to be substantially straight as horizontal transmission lines. [0014]

In regards to claims 17 and 34, Brewer et al discloses the dielectric film to be spun on the substrate. [0032]

In regards to claims 18 and 35, Brewer et al fails to disclose an additional step of heating the stamp prior to compressing the stamp to the dielectric film layer. However, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have heated the stamp prior to compressing the stamp to the dielectric film because by heating the stamp, the heat from the stamp would further soften the dielectric film material and therefore the compression of the dielectric fiber would endure less strain and pressure which would further protect any circuitry on the underlying wafer or substrate.

In regards to claim 36, although Brewer et al does not specifically disclose two elements, namely a resonator and a waveguide, as a pattern on a stamp, Brewer et al does disclose the stamp be imprint pre-formed structures in a dielectric film. Brewer et al does not limit the stamping imprint to only one element. Brewer et al simply states the stamp is able to imprint the pre-formed image on the stamp. Since Brewer et al discloses both a resonator and a waveguide could be stamped on the dielectric film layer it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have a resonator and a waveguide on the stamp to imprint on the dielectric substrate.

In regards to claim 51-56, Brewer et al fails to specifically disclose the integrated optical device is a wavelength converter or a modulator or a switch or a router or a wavelength filter or a dispersion compensator. However, Brewer et al states the stamp is able to imprint the pre-

formed image on the stamp. Furthermore, Brewer et al states many other structures can be fabricated on the dielectric film layer. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have integrated any of the devices into the dielectric film layer.

*Allowable Subject Matter*

Claims 3, 5, 7-16, 21, 23-33 and 39-50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In regards to claims 3, 7-15, 21, 24-32 and 39-49, the prior art of record fails to disclose or reasonably suggest the dielectric film layer in an integrated optical waveguide/resonating device formed from a dielectric material with a matrix having quantum dots dispersed.

In regards to claims 5 and 23, the prior art of record fails to disclose or reasonably suggest an additional step of removing any excess dielectric material by wet etching using a buffered HF solution. Brewer et al discloses removing any excess dielectric material, however teaches away from wet etching/chemical etching a material. Brewer et al teaches a method of plasma etching. [0036]

In regards to claims 16, 33 and 50, the prior art of record fails to disclose or reasonably suggest the dielectric film layer formed of an electro-optic polymer having a highly polymerizable chromophore in its backbone or sidechain.

The documents submitted by applicant in the Information Disclosure Statement have been considered and made of record. Note attached copy of form PTO-1449. None of the

documents submitted by Applicant discloses or reasonably suggests the allowable subject matter discussed above.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B and C discuss stamping dielectric substrates to form components, however, none of the documents cited by the Examiner discloses or reasonably suggests the allowable subject matter discussed above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M. Lin whose telephone number is (571) 272-2352. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
TML

  
AkM ENAYET ULLAH  
PRIMARY EXAMINER